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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,551	06/03/2005	Susumu Takagi	28951.5397	4529

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EXAMINER

TZENG, FRED

ART UNIT	PAPER NUMBER
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2627

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/537,551

Applicant(s)

SUSUMU TAKAGI

Examiner

Fred Tzeng

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17 is/are allowed.
- 6) ☒ Claim(s) 18-20 and 25 is/are rejected.
- 7) ☒ Claim(s) 21-24, 26 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/3/2005.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the Preliminary Amendment filed on 6/3/2005. Claims 1-27 are presented for examination.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 6/3/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

4. Figures 16, 17, 18, 19 and 20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 18-20, 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Takagi et al (US 2006/0066978), the applicants' admitted prior art, hereafter as AAPA.

RE claims 18 and 19, AAPA discloses a magnetic disk drive (see figure 16 and section [0002]), comprising: a magnetic head slider mounted with a magnetic read/write element to read and write information (see figure 16 and section [0002]); a suspension comprising a plate spring of a thin plate shape for adhering to and supporting the

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magnetic head slider, a flexible circuit and a load beam (see figures 16, 17 and section [0002], [0003]); a magnetic disk for holding information (see figure 16 and section [0002]); rotation drive means of the magnetic disk (see figure 16 and section [0002]); and an actuator mechanism for moving a magnetic head assembly comprising magnetic head slider and the suspension along the information recording surface of the magnetic disk (see figure 16 and section [0002]), wherein the plate spring of a thin plate shape for adhering to and supporting the magnetic head slider is constructed as a bi-metal structure of two thin plates with different thermal expansion coefficients (see section [0009]).

RE claims 20 and 25, AAPA discloses a magnetic disk drive (see figure 16 and section [0002]), comprising: a magnetic head slider mounted with a magnetic read/write element to read and write information (see figure 16 and section [0002]); a suspension comprising a plate spring of a thin plate shape for adhering to and supporting the magnetic head slider, a flexible circuit and a load beam (see figures 16, 17 and section [0002], [0003]); a magnetic disk for holding information (see figure 16 and section [0002]); rotation drive means of the magnetic disk (see figure 16 and section [0002]); and an actuator mechanism for moving a magnetic head assembly comprising magnetic head slider and the suspension along the information recording surface of the magnetic disk (see figure 16 and section [0002]), wherein the magnetic disk drive further comprises temperature detection means for detecting the internal temperature of the magnetic disk drive, and flying height control means for changing a flying height of the

magnetic head slider with respect to the magnetic disk based on the temperature detection result by the temperature detection means (see section [0011], [0012]).

Allowable Subject Matter

8. Claims 1-17 are allowed.
9. Claims 21-24, 26, 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following are statements of reasons for the indication of allowable subject matters:

Claims 1, 2, 21-23 are allowable over the prior art of record because none of the prior art of record teaches or fairly suggests means for particularly decreasing the flying height from the flying height at a room temperature of 25 degree C when the temperature is lower than the room temperature and increasing the flying height from the flying height at the room temperature when the temperature is higher than the room temperature.

Claims 3-5 are allowable over the prior art of record because none of the prior art of record teaches or fairly suggests that the magnetic head slider is decreased in crown value when the temperature is lower than a room temperature (25 degree C), and the crown value of the magnetic head slider is increased when the temperature is higher than the room temperature.

Claims 6-11 are allowable over the prior art of record because none of the prior art of record teaches or fairly suggests that the thermal expansion coefficient of plate spring and the thermal expansion coefficient of magnetic head slider is satisfied by a relationship as defined in claims 6 and 9 respectively.

Claims 12-17 are allowable over the prior art of record because none of the prior art of record teaches or fairly suggests that the thin film formed on a rear surface of the slider face of the magnetic head slider with respect to a magnetic disk having a thermal expansion coefficient smaller than that of the material of magnetic head slider.

Claims 24 and 27 are allowable over the prior art of record because none of the prior art of record teaches or fairly suggests that the average rate of change of the flying height caused by the change of temperature from the flying height at the room temperature status (25 degree C) is $0.15\%/^{\circ}\text{C}$ to $0.45\%/^{\circ}\text{C}$ in a desired temperature range.

Claim 26 is allowable over the prior art of record because none of the prior art of record teaches or fairly suggests that the rate of change of the crown value caused by the change of temperature is 0.26 to $0.62\text{ nm}/^{\circ}\text{C}$ in a desired temperature range.

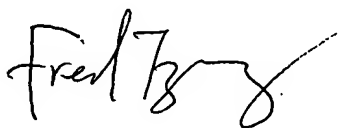
Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication from the examiner should be directed to Fred Tzeng whose telephone number is 571-272-7565. The examiner can normally be reached on weekdays from 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on 571-272-7579. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-7565 for After Final communications.

13. Informal regarding the status of an application may be obtained from the Patent Application Information Retrieval (**PAIR**) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Fred Tzeng", with a stylized flourish at the end.

Fred F. Tzeng

June 25, 2006